

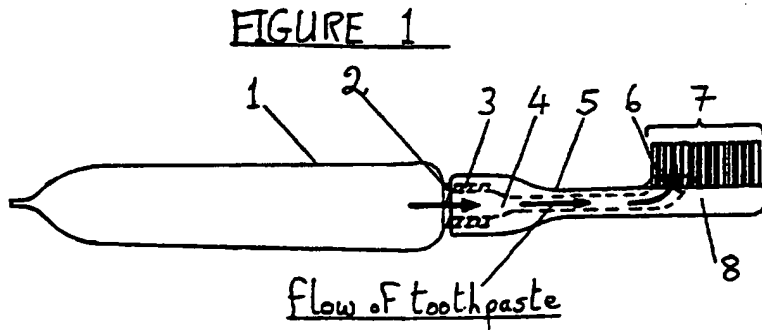
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(54) Abstract Title  
Reservoir toothbrush

(57) A toothbrush with a reservoir for toothpaste 1 situated in the handle of the toothbrush or forming the handle itself. A cavity 4 in the stem 5 connects the reservoir 1 to the toothpaste exit hole 6 near the bristle area 7 of the head 8. Toothpaste is forced from the reservoir, through the cavity and out of the exit hole directly onto the bristles as indicated by the 'flow of toothpaste' arrows.



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FIGURE 1

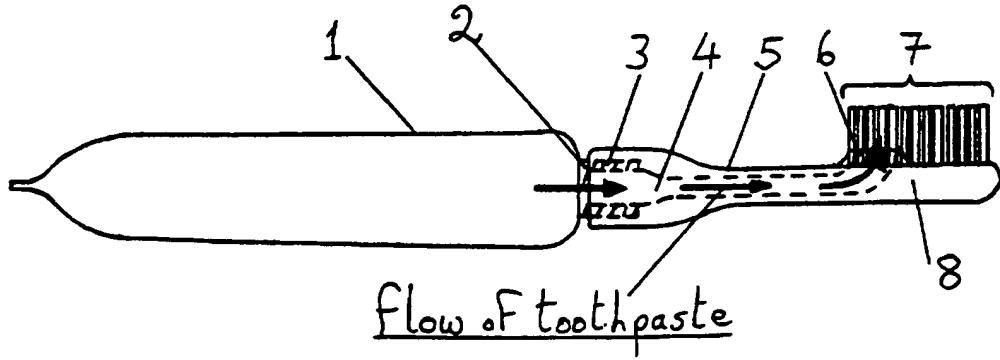


FIGURE 2

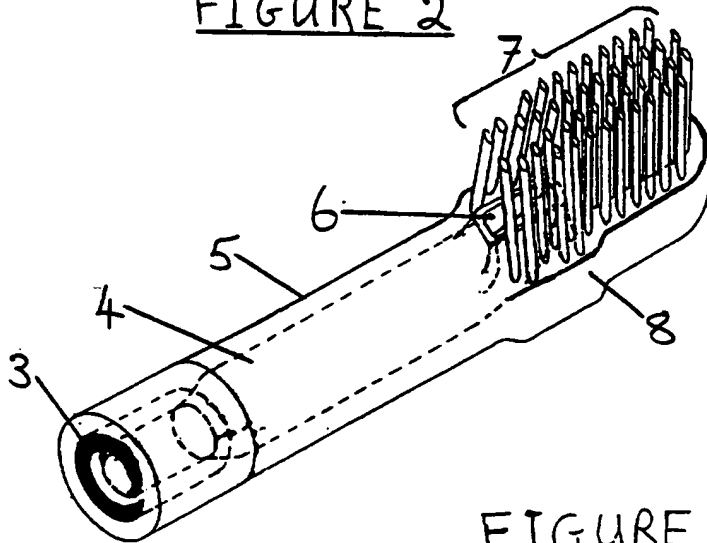


FIGURE 3

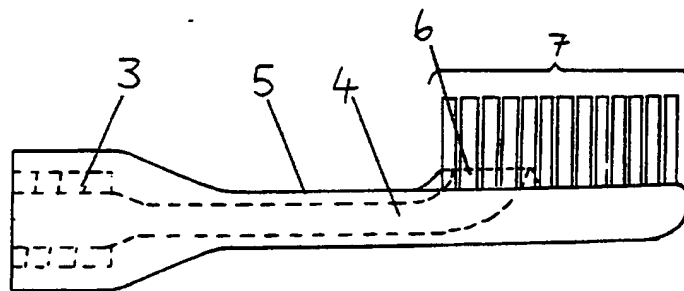
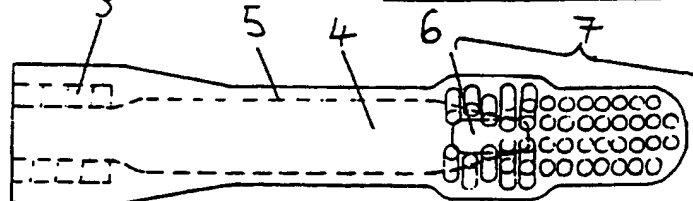


FIGURE 4



## SELF-PRIMING TOOTHBRUSH

This invention relates to a self-priming toothbrush.

Toothbrushes generally comprise a handle, with which to hold it during use, a stem or neck attached to the handle, or being a continuation of it, and a head attached to, or continuing from, the stem from which bristles protrude. The handle, stem and head are commonly constructed from plastic as a unit with bristles inserted into the head. Toothpaste is usually applied to the bristles i.e. the toothbrush is primed, by extruding it from a separate container, before the toothbrush is used.

Priming the toothbrush is not easily accomplished without using two hands.

According to the present invention a reservoir for toothpaste is conveniently situated in the handle of the toothbrush or forms the handle itself. From there it passes through a hole or tube connecting the reservoir to the bristle area through, or beside, the stem. Toothpaste comes out of the toothbrush directly onto the bristles instead of being applied externally.

This reservoir could be fixed/sealed (implying a disposable toothbrush) or exchangeable/refillable (implying a reusable toothbrush).

Replacing the toothpaste could be accomplished by injecting it into the reservoir or alternatively by exchanging a cartridge, which could be a customized container, or by directly screwing an "ordinary" i.e. soft toothpaste tube onto the toothbrush.

The toothpaste could be forced from the reservoir through the tube to the bristles by means of an incorporated pump e.g. such as is commonly fitted to the top of rigid toothpaste tubes. Alternatively for a soft reservoir, as would be in the case of a directly screwed-on soft toothpaste tube, it could be simply squeezed out.

Depending on design and/or manufacturing constraints limiting the diameter of the hole/tube it may be desirable to use a more liquid toothpaste mixture than normal.

For convenience and/or hygiene it may be desirable to fit a valve where the toothpaste exits onto the bristles.

A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawing in which:-

Figure 1 shows a side elevation of the complete toothbrush;

Figure 2 shows the toothbrush head and stem in orthographic projection;

Figure 3 shows the side elevation of the toothbrush head and stem; and

Figure 4 shows the plan of the toothbrush head and stem.

In this example the toothbrush is refillable by screwing the thread 2 of the toothpaste tube 1 directly onto the thread 3 in the stem 5 (figure 1).

Toothpaste is squeezed out of the toothpaste tube by hand, through the cavity 4 and out of the toothpaste exit hole 6 situated in the bristle area 7 of the head 8 (figure 1). The toothbrush is then ready for use. When the toothpaste tube is empty it can be replaced by unscrewing it and screwing on a new one.

Figures 2, 3 and 4 provide other perspectives of the stem and head.

## CLAIMS

1. A toothbrush with a reservoir for toothpaste conveniently situated in the handle or forming the handle itself. From there the toothpaste passes through a hole or tube connecting the reservoir to the bristle area via, or beside, the stem. Toothpaste comes out of the toothbrush head, or near to it, directly onto, or nearby, the bristles instead of being applied externally.
2. A toothbrush as claimed in Claim 1 where the toothpaste is sealed into the toothbrush implying that the toothbrush should be disposed of once its reservoir is exhausted.
3. A toothbrush as claimed in Claim 1 where the toothpaste is contained in a refillable reservoir in the toothbrush implying that the toothbrush is refillable.
4. A toothbrush as claimed in Claim 3 where the toothpaste reservoir is refilled by injecting toothpaste into it from another container.
5. A toothbrush as claimed in Claim 3 where the toothpaste reservoir is refilled by exchanging a cartridge such as ordinary soft-type toothpaste tube.
6. A toothbrush as claimed in Claim 1 where the toothpaste reservoir is flexible, permitting the toothpaste to be forced from the reservoir out of the toothpaste exit hole by hand pressure squeezing the reservoir.
7. A toothbrush as claimed in Claim 1 where the toothpaste is forced from the reservoir out of the toothpaste exit hole by means of an incorporated pump e.g. such as is commonly fitted to the top of rigid toothbrush tubes.
8. A toothbrush as claimed in Claim 1 with a valve fitted to permit the toothpaste to flow in the direction from the reservoir to the toothpaste exit hole. This valve could be situated at the toothpaste exit hole.
9. A toothbrush substantially as described herein with reference to Figures 1-4 of the accompanying drawing.



Application No: GB 9722339.0  
Claims searched: 1-9

Examiner: G WERRETT  
Date of search: 15 January 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK CI (Ed.P): A4K.  
Int CI (Ed.6):  
Other:

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2304553 A (BILSON) see, e.g. page 5, ll 1-3.	1,2,6-8.
X	GB 2303296 A (OLIVE) see whole document.	1-3,5,6,8.
X	GB 2286333 A (SCHATZBERGER) see exterior channel 34, Figs. 6 (a) & (b), & refilling, page 7, l 18 on.	1,3,7.
X	GB 2194728 A (FOY) see pump.	1,7.
X	GB 2143428 A (PULIDO) see replaceable, squeezable container 4.	1,5,6.
X	GB 2085717 A (CAMPBELL) see pump, e.g. Fig. 1, & duct-end valves, Figs. 16-24.	1,7,8.
X	GB 1601408 (SECUNDA) see, e.g., refilling, page 2, l 66 on, & disposing, page 3, l 45 on.	1-4, 6.
X	GB 0418956 (COOMBES) see standard paste tube 9.	1,5,6.

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.